Stress on Pretonic Light Syllable in English Affixed Words

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Tomoya FUKUSHI

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Introduction

Stress pattern of English affixed words is one of the important aspects in Optimality Theory (Prince & Smolensky 1993). Benua (1997) proposes an analysis based on Output-Output correspondence relations and concludes that the different stress patterns of English affixed words are attributed to the different ranking of Output-Output faithfulness constraints. Pater (2000) discusses stress preservations on pretonic light syllable in English affixed words. He claims that preservation and non-preservation of pretonic stress are accounted for by the interactions of prosodic markedness and correspondence constraints.

In this paper, I will provide an Optimality-Theoretic analysis of stress patterns of English affixed words focusing on preservation and non-preservation of pretonic stress. I will propose that whether pretonic stress is preserved or not is attributed to the presence of lexical accent.

This paper is organized as follows: Section 1 provides the data concerning non-preservation of pretonic stress observed by Pater (2000). In section 2, I will outline Pater's (2000) Optimality-Theoretic analysis of pretonic stress preservations of affixed words and point out a problem of his analysis. An alternative analysis for pretonic stress preservation is presented in section 3. Section 4 concludes the paper.

1. Productive destressing in English affixed words

There is a productive destressing of pretonic syllables in English affixed words. Pater (2000) discusses non-preservation of pretonic stress which I will outline in this section. The failure of pretonic stress preservation in word-internal and word-initial positions is discussed in section 1.1 and 1.2, respectively.

1.1 Word-internal destressing (Pater 2000)

Pater (2000) observes that in English affixed words, there is a consistent failure of stem stress preservation in word-internal position. In particular, stem stress on the pretonic light syllable is not preserved when it is the final number of bisyllabic or trisyllabic pretonic string. Pater (2000) shows the examples in (1).

(1) a.

phonétic / phònetícian	telépathy / tèlepáthic
còsmétic / còsmetícian	mechánic / mèchanístic
pathólogy / pàthológical	philátely / phìlatélic
specífic / spècifícity	diámeter / dìamétric

b. àcadémic / àcademícian
màthemátic / màthematícian
hèmatólogy / hèmatológic
mìlitáry / mìlitarístic
Ìndiána / Ìndianápolis

Examples of bisyllabic pretonic strings and those of trisyllabic pretonic strings are shown in (1a) and (1b), respectively. In both cases, primary stress on the stem is not preserved as secondary stress on the correspondent syllable of the derived words. Stem stress is not preserved on the pretonic light syllable of the derived words.

1.2 Word-initial destressing (Pater 2000)

In addition to the word-internal destressing shown in (1), Pater (2000) also observes that the same absence of stress usually occurs in word-initial position. The examples in (2) are the ones which Pater (2000) refers to as examples of word-initial destressing.

(2) médicine / medícinal
órigin / oríginal
grámmar / grammárian
míracle / miráculous
cívil / civílian
májesty / majéstic
próphecy / prophétic
nóvel / novélla

In (2), stem stress in word-initial syllable loses its stress when it is on the pretonic light syllable of the derived words.

In the following section, I will outline the analysis of non-preservation of stem stress discussed by Pater (2000).

2. Previous analysis

This section reviews Pater's (2000) Optimality-Theoretic analysis of pretonic stress preservation. In section 2.1, I will review his analysis of non-preservation of stem-based stress. I will point out a problem of his analysis in section 2.2.

2.1 Pater's (2000) analysis of non-preservation of pretonic stress

Pater (2000) argues that the failure of pretonic stress preservation can be accounted for by the interactions of prosodic markedness and correspondence constraints listed in (3).

(3) a. **FootBinality** (Prince & Smolensky 1993):
Feet are binary at some level of analysis (μ, σ).

b. ***CLASH-HEAD** (Pater 1995, 2000):

No stressed syllable may be adjacent to the head syllable of the Prosodic Word.

c. **IDENT-STRESS** (Pater 1995, 2000):

If α is stressed, then $f(\alpha)$ must be stressed.

FOOTBINALITY requires feet to be bisyllabic or bimoraic. *CLASH-HEAD strictly puts a ban on the sequence of the syllable with primary stress and the one with secondary stress, and vice versa. The sequence of secondary-stressed syllables does not violate this constraint. In the constraint, IDENT-STRESS, f is the correspondence relation between input (lexical) and output (surface) strings of segments.[1] Pater (2000) claims that the blocking of stem-based stress preservation can be ascribed to the constraint ranking of FOOTBINALITY » IDENT-STRESS, since pretonic light syllables are forced to be parsed into a monomoraic foot in order to preserve stem stress. The tableaux in (4), (5), and (6) account for the impossibility of word-internal or word-initial pretonic stress preservation.[2]

(4)

phonétician	FTBIN	ID-STRESS	*CLASH-HEAD
☞a. (phòne)(tícian)		*	
b. (phò)(nè)(tícian)	*!		*

Tableau (4) illustrates the case of bisyllabic pretonic strings. In candidate (4b), pretonic light syllable is parsed into a degenerate foot and secondary stress is realized on it. This candidate violates the higher-ranked FOOTBINALITY. Candidate (4a), on the other hand, does not violate FOOTBINALITY, since pretonic light syllable is parsed into a bimoraic foot. Although candidate (4a) incurs a violation of IDENT-STRESS, it is not ruled out due to the constraint ranking of FOOTBINALITY » IDENT-STRESS. Thus, candidate (4a), which does not preserve stem stress, is selected as optimal.

(5)

àcadémician	FTBIN	ID-STRESS	*CLASH-HEAD
☞a. (àca)de(mícian)		*	
b. (àca)(dè)(mícian)	*!		*

The case of trisyllabic pretonic strings is exemplified in tableau (5). Pretonic light syllable is parsed into a monomoraic foot and primary stress on the stem changes into secondary stress in candidate (5b). Though this candidate satisfies IDENT-STRESS, it fatally incurs a violation of higher-ranked constraint, FOOTBINALITY, and is ruled out. Candidate (5a) does not have any degenerate feet and no stress is realized on the pretonic

syllable. Irrespective of violating IDENT-STRESS, this candidate is selected as the optimal one, since it satisfies the higher-ranked constraint, FOOTBINALITY.

(6)

médicinal	FTBIN	ID-STRESS	*CLASH-HEAD
a. (mè)(díci)nal	*!		*
☞b. me(díci)nal		*	

Tableau (6) exemplifies non-preservation of pretonic stress in word-initial position. In candidate (6a), word-initial stem syllable is parsed into a degenerate foot in the derived form and secondary stress occurs on that foot. Candidate (6a) is excluded by violating FOOTBINALITY due to its monomoraicity of initial foot. Candidate (6b), which does not preserve word-initial pretonic stress, incurs a violation of the lower-ranked IDENT-STRESS. This candidate, however, does not violate the higher-ranked FOOTBINALITY, since there are no monomoraic feet in this candidate. Thus, candidate (6b) wins over (6a).

2.2 A problem of Pater's (2000) analysis

As we have seen in (2), word-initial pretonic stress is not generally preserved in derived words. Pater (2000), however, also observes that there are some counter examples of word-initial destressing.[3] In (7), word-initial stem stress is preserved as secondary stress although it is on the pretonic light syllable.

(7)

hérald / hèráldic	Ítaly / Ìtálian
léprosy / lèprótic	rábbi / ràbbínical
ánarchy / ànárchic	éthic / èthícian
gémma / gèmmátion	Héllène / Hèllénic
fáscist / fàscístic	lípid / lìpídic
módern / mòdérnity	clínic / clìnícian
Áaron / Àarónic	mámmal / màmmálian
ácid / àcídic	métric / mètrícian

As we have seen in 2.1, Pater (2000) attributes the general absence of stem stress on word-initial monomoraic syllables to the constraint ranking of FOOTBINALITY over IDENT-STRESS. However, given the constraint ranking, FTBIN » IDENT-STRESS » *CLASH-HEAD, the form without stress on word-initial pretonic light syllable is wrongly predicted for the words in (7).[4] The impossibility of pretonic stress preservation is shown in the tableau below.

(8)

héraldic	FTBIN	ID-STRESS	*CLASH-HEAD
☚a. he(rál)dic		*	
b. (hè)(rál)dic	*!		*

In tableau (8), candidate (8b), which preserves word-initial pretonic stress, satisfies IDENT-STRESS. This candidate forms a degenerated foot in word-initial position and is eliminated by violating the higher-ranked FOOTBINALITY. Candidate (8a) does not preserve stem stress and violates the lower-ranked constraint, IDENT-STRESS. This candidate satisfies the higher-ranked constraint, FOOTBINALITY, since the syllable in word-initial position is not parsed into a monomoraic foot. Thus, candidate (8a) is selected as optimal in the tableau. This result, however, is contrary to the fact in (7).

In the next section, I will propose an alternative analysis of preservation and non-preservation of pretonic stress.

3. An alternative analysis

In this section, I will provide an alternative analysis and propose that preservation or non-preservation of stem stress on pretonic light syllables are attributed to the presence or absence of lexical accent. Section 3.1 offers an analysis of preservations and non-preservations of word-initial pretonic stress. The analysis of word-internal pretonic stress preservation is given in section 3.2.

3.1 Preservation and non-preservation of stem stress on word-initial pretonic light syllables

According to Pater (2000), the failure of pretonic stress preservation in word-initial position can be accounted for by the interactions of two constraints, FOOTBINALITY and OO-correspondence version of IDENT-STRESS. The constraint hierarchy in (6) correctly predicts the optimal form. As pointed out in 2.2, however, this constraint ranking cannot account for the preservation of pretonic stress in (7). In short, two different constraint rankings are needed on his analysis in order to account for both preservation and non-preservation of pretonic stress.

To account for preservation and non-preservation of word-initial pretonic stress with a single constraint hierarchy, I make two proposals:

i. Preservation and non-preservation of stem stress can be simply accounted for by IO-correspondence relation. OO-correspondence relation is irrelevant.

ii. Non-preservation of stem stress on the pretonic light syllable is structure-driven, while stress preservation is lexicon-driven.

Preservation and non-preservation of word-initial pretonic stress are illustrated in the diagram (9).

(9) a. structure-driven non-preservation	b. lexicon-driven preservation[5]	
mə(díci)nal	(hɛ̱)(rál)dic	
↑	↑	**IO-Faith**
/mɛdicinal/	/hɛ̱raldic/	

The diagram (9a) shows that the lack of pretonic stress is due to non-preservation of the quality of word-initial vowel. In this case, the effect of structural constraints including prosodic markedness and alignment constraints (McCarthy & Prince 1993b) plays an important role in determining the lack of word-initial pretonic stress. As shown in (9b), on the other hand, roots in (7) have lexical accent on the first syllable, and the quality of the accented vowel is forced to be identical to its input correspondent by positional faithfulness constraint. Pretonic stress must be preserved to preserve the quality of lexically accented vowel.

Preservation and non-preservation of word-initial pretonic stress can be captured by the following constraints:

(10) a. **MAX-IO (f)-V̱**:

Features of accented vowel in the input must be identical to those of the output.

b. **ALIGN-HEAD** (McCarthy & Prince 1993b):

The right edge of the Prosodic Word must be aligned with the right edge of its head foot.

c. **LICENSE**:

Full vowels must be licensed by stressed syllables.

d. **FOOTBINALITY** (Prince & Smolensky 1993):

Feet are binary at some level of analysis (μ, σ).

e. ***CLASH**:

No stressed syllables are adjacent.[6]

IO-correspondence constraint, MAX-IO (f)-V̱, forces the quality of the accented vowel in the input to be preserved in the output. The candidate in which reduction of the vowel occurs violates this constraint, since output correspondent of an accented vowel in the input loses its features. ALIGN-HEAD requires that primary stress be placed near the right edge of the prosodic word. Stress on the full vowel is forced by the constraint, LICENCE. The effect of FOOTBINALITY is the same as mentioned in section 2.1. *CLASH bans adjacent stressed syllables. The constraint rankings in (11) and (12) account for the possibility and impossibility of the preservation of stem stress on word-initial pretonic light syllables.

(11)

/mɛdicinal/	MAX-IO (f)-$\underline{v}$	ALIGN-H	LICENCE	FTBIN	*CLASH
a. (mə̀)(díci)nal		*		*!	*
b. mɛ(díci)nal		*	*!		
c. (mɛ̀)(díci)nal		*		*!	*
☞d. mə(díci)nal		*			
e. (mé)(dìci)nal		**!*		*	*

Tableau (11) illustrates the non-preservation of word-initial pretonic stress. The undominated constraint, MAX-IO (f)-$\underline{v}$, is vacuously satisfied in this tableau, since there are no accented vowels in the input form. Although all the candidates in (11) violate the constraint, ALIGN-HEAD, candidate (11e) is excluded due to more than two violation marks of this constraint. In candidate (11b), stress is not realized on the full vowel of the first syllable. This candidate violates LICENCE and is ruled out. Pretonic syllable is parsed into a monomoraic foot and secondary stress is realized on it in candidates (11a) and (11c). They incur a violation of FOOTBINALITY, and are eliminated. Thus, candidate (11d), which does not preserve word-initial pretonic stress, is selected as optimal.

(12)

/hɛ̲raldic/	MAX-IO (f)-$\underline{v}$	ALIGN-H	LICENCE	FTBIN	*CLASH
a. (hə̲̀)(rál)dic	*!	*		*	*
b. hɛ̲(rál)dic		*	*!		
☞c. (hɛ̲̀)(rál)dic		*		*	*
d. hə̲(rál)dic	*!	*			
e. (hɛ̲́)(ràl)dic		**!		*	*

Preservation of word-initial pretonic stress is evaluated in tableau (12). Reduction of the vowel on the first syllable occurs in candidates (12a) and (12d). They are eliminated due to the violation of MAX-IO (f)-$\underline{v}$, since the quality of the accented vowel in the input form is not identical to its correspondent of the output. All the candidates incur violations of ALIGN-HEAD, since primary stress is realized on one of the first two syllables. Among these candidates, candidate (12e), where primary stress falls on the first syllable, violates ALIGN-HEAD twice, and is ruled out. Stress does not fall on the full vowel in candidate (12b). Therefore, the violation of LICENCE excludes the candidate (12b). As a result, candidate (12c), which preserves word-initial pretonic stress, is selected as optimal.

This analysis shows that preservation of stem stress on the pretonic light syllable is attributed to the presence of lexical accent, and they are simply accounted for by IO-correspondence relation. In the case of

the lack of lexical accent, on the other hand, structural constraints play an important role and pretonic stress is not preserved. It is possible to claim that non-preservation of pretonic stress is structure-driven, while stress preservation is lexicon-driven.

3.2 Non-preservation of stem stress on the word-internal pretonic light syllables

In the previous section, I proposed an analysis of preservation and non-preservation of word-initial pretonic stress. Word-internally, the failure of stem stress preservation is attributed to the same constraint ranking as in (11-12).

(13)

/phonɛtician/	MAX-IO (f)-$\underline{v}$	ALIGN-H	LICENCE	FTBIN	*CLASH
☞a. (phònə)(tícian)					
b. (phò)(nɛ̀)(tícian)				*!*	**
c. (phò)nə(tícian)				*!	
d. (phónə)(tìcian)		*!*			
e. (phò)nɛ(tícian)			*!	*	
f. (phò)(nə̀)(tícian)				*!*	**

Tableau (13-14) illustrates the evaluation of the absence of word-internal pretonic stress. In tableau (13), the case of bisyllabic pretonic strings is exemplified. Primary stress falls on the leftmost syllable in candidate (13d). This candidate incurs two violation marks of the constraint, ALIGN-HEAD, and is eliminated. Although candidate (13e) has a full vowel in the second syllable, stress is not realized on it. Thus, candidate (13e) violates LICENCE, and is ruled out. Among the remaining candidates, FOOTBINALITY plays a crucial role in selecting the optimal candidate. Candidates (13b), (13c), and (13f) have monomoraic feet, and incur the violation of the constraint, FOOTBINALITY. Candidate (13a), which does not preserve pretonic stress, is the winner, since it does not violate any of the constraints.

(14)

/acadɛmician/	MAX-IO (f)-$\underline{v}$	ALIGN-H	LICENCE	FTBIN	*CLASH
☞a. (àca)də(mícian)					
b. (àca)(dɛ̀)(mícian)				*!	**
c. (àca)(də̀)(mícian)				*!	**
d. (àca)dɛ(mícian)			*!		
e. (áca)də(mìcian)		*!**			
f. (àca)(dɛ́)(mìcian)		*!*		*	**

Tableau (14) illustrates the case of trisyllabic pretonic strings. In this tableau, candidates (14e) and (14f), which have more than one violation mark of ALIGN-HEAD, are ruled out. Stress does not fall on the full vowel of pretonic syllable in (14d). This candidate incurs a violation of LICENCE, and is ruled out. Candidates (14b) and (14c) are excluded by violating FOOTBINALITY, since pretonic syllables are parsed into monomoraic feet. Thus, candidate (14a) without pretonic stress is selected as optimal.

This analysis shows that the failure of word-internal pretonic stress preservation can be accounted for by the interactions of structural constraints. In other words, non-preservation of pretonic stress is structure-driven, since IO-correspondence relation has nothing to do with the selection of the optimal candidate.

4. Conclusion

In this paper, I have discussed preservation and non-preservation of stem stress on the pretonic light syllable in English and provided an alternative Optimality-Theoretic analysis. In order to capture the pretonic stress on derived words, I proposed that pretonic stress in word-initial position is attributed to the presence of lexical accent, while in words without lexical accent structural constraints force pretonic stress to be reduced. In this sense, the lack of stem stress on the pretonic light syllable is structure-driven, and the presence of stem stress is lexicon-driven. The proposed analysis is superior to Pater's (2000) analysis in that the interaction of two constraints, MAX-IO (f)-$\underline{v}$ and FOOTBINALITY, provides us with a unified account for the presence/absence of stress on the pretonic light syllable in English affixed words.

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Notes

[1] According to Pater (1995, 2000), IDENT-STRESS is taken to be a single constraint, or the abbreviation for a pair of separate Input-Output and Output-Output versions of IDENT-STRESS that occupy the same place in the hierarchy.

[2] Tableaux (4) and (5) are provided by Pater (2000). I illustrate the evaluation of tableau (6) by using the constraint hierarchy proposed by Pater (2000).

[3] Pater (2000) also observes some examples of lexical stress on word-initial pretonic light syllables (e.g., ràccóon, bàbóon, èffáce, etc.). However, I do not treat these examples in this paper.

[4] Of course, Pater (2000) recognizes that the proposed constraint hierarchy does not capture the word-initial pretonic stress preservation.

[5] In diagram (9b), lexical accent is denoted with an underscore.

[6] The difference between *CLASH-HEAD (Pater 1995, 2000) and *CLASH is as follows: *CLASH-HEAD only bans the sequence of primary- and secondary-stressed syllables. Contrarily, any sequence of stressed-syllables incurs the violation of *CLASH.

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